

05-29-01

A

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Attorney Docket No. 70179

Hon. Commissioner of Patents
and Trademarks
Washington, D.C. 20231

Sir:

1. This is a request for filing a:

(X) Continuation Application Under 37 CFR §1.53(b)

of pending prior application no. 09/394,732 filed on September 13, 1999 for
APPARATUS AND METHOD FOR THE VISUAL INSPECTION IN
PARTICULAR OF CONCEALED SOLDERED JOINTS wherein the inventors are:

Mark CANNON

Using the enclosed specification of 26 pages and 28 claims.

The entire disclosure of the above mentioned pending prior application, is considered to be part of the disclosure of the accompanying application and is hereby incorporated by reference therein.

2. Prior Application Information: Examiner: Pham, H.
Group/Art Unit: 2877

3. X The filing fee is calculated below:

CLAIMS AS FILED, LESS ANY CLAIMS CANCELED BY AMENDMENT

	<u>FILED</u>	<u>EXTRA</u>	<u>RATE</u>	<u>FEE</u>
Total claims	28	8	\$18/\$9	\$72.00
Independent Claims	4	1	\$80/\$40	\$40.00

Multiple Dependand Claims No

Basic Filing Fee: \$ 355.00

Total Filing Fee: \$ 467.00

4. ☒ The Commissioner is hereby authorized to charge any fees which may be required, or to credit any overpayment to our Deposit Account No. 13-0410.
5. ☒ A check in the amount of \$ 467.00 is enclosed.
6. ☐ Cancel claims _____
7. ☐ Amend the specification by inserting before the first line the sentence:
-- This is a Continuation of application Serial No. 09/394,732 filed September 13, 1999, and the entire disclosure of this prior application is considered to be part of the disclosure of the accompanying application and is hereby incorporated by reference therein.--
8. ☒ Formal drawings are enclosed.
[Total Sheets: 3]
9. ☒ The prior application is assigned to ERSA GmbH as recorded under Reel 011541 and Frame 0034. Copies of the recorded assignment are enclosed and the assignment carry over to the present application.
10. ☒ Oath or Declaration [Total Pages: 2]
- a. ☐ Newly Executed (original or copy)
- b. ☒ Copy from a prior application (37 C.F.R. § 1.63(d))
11. ☒ Any Convention priority claimed in the parent application is hereby claimed for this application.
12. ☐ A preliminary amendment is attached.
13. ☒ Small Entity status as claimed in the parent application is still proper and hereby claimed for this application. A copy of the Small Entity document from the parent application is enclosed.

14. ACCOMPANYING APPLICATION PARTS

- ☐ English Translation Document
- ☒ Information Disclosure Statement/PTO Form 1449
- ☐ Copies of IDS Citations
- ☒ Return Receipt Postcard (MPEP 503)
- ☐ Certified Copy of Priority Document
- ☒ Request for Reconsideration
- ☒ Other Affidavit

15. X CORRESPONDENCE ADDRESS BELOW:

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Name: Theobald Dengler

Reg. No.: 34,575

Signature: 

Date: May 25, 2001

TD:sk

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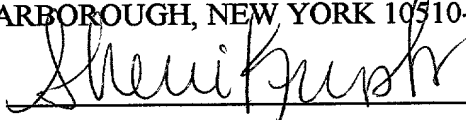
DATED: May 25, 2001

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SCARBOROUGH, NEW YORK 10510-0827

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McGLEW AND TUTTLE, P.C., SCARBOROUGH STATION,
SCARBOROUGH, NEW YORK 10510-0827

By:  Date: May 25, 2001

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Re: ATTORNEY DOCKET: 70179
Customer Number: 000023872

Sir:

Attached please find the complete application papers and Small Entity fees in the above-identified application which are being placed in the U.S. Mail today, May 25, 2001, as Express Mail number EL151019508US.

A copy of the Express Mail receipt is also attached.

Respectfully submitted
for Applicant(s),

By: 

Theobald Dengler
Reg. No. 34,575
McGLEW AND TUTTLE, P.C.

TD:sk

Enclosures - Complete Application Papers and Fees
- Copy of Express Mail Receipt

DATED: May 25, 2001
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BY: Shenik Gush DATE: May 25, 2001

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant : CANNON
Serial No :
Confirm. No :
Filed :
For : APPARATUS AND METHOD...
Art Unit : 2877
Examiner : Pham, H.
Dated : May 25, 2001

Hon. Commissioner of Patents
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Washington, D.C. 20231

REQUEST FOR RECONSIDERATION

The specification and claims in this continuation application have been written to incorporate the changes made in the parent application, to address the rejections made in the last Office Action in the parent application, and to further highlight and more clearly point out the important features of the invention.

Claims 1-23 have been rejected in the parent application as being obvious over Czarnek in view of Hayes.

Applicant has reviewed both Czarnek and Hayes, and finds the present invention to set forth a combination of features which is unique and non-obvious in view of Czarnek and Hayes.

In the present invention, the light is emitted from the head 2 at an axial or longitudinal position that is the same as the axial portion of the prism or mirror 9. This relative positioning of the light and the prism is shown in Figure 2 of the present application. The light is emitted

from light exits 15, 16 and the axial direction is vertical in Figure 2. Applicant does not find any teaching or suggestion of this position relationship between a light and a reflector in the prior art. The rejection equates elements 44 and 31 of Czarnek with the illuminating device of the present invention. Applicant notes that element 31 in Czarnek is clearly axially spaced from element 27 which the rejection equates with the deviation device of the present invention. Therefore the relationship of the illuminating device being at the same axial or longitudinal position as the deviating device, is not taught by Czarnek.

Furthermore Applicant notes that Czarnek describes two mirrors 27 and 28 and specifically shows a prism 31 to project light through illuminating window 16. Element 31 is specifically taught as being positioned between mirrors 27 and 28. Applicant notes that if the primary and main purpose of Czarnek is to provide two observation windows, there would be no incentive in the prior art which would lead a person of ordinary skill in the art to move element 31 to a same axial or longitudinal position as mirror 27. Such a positioning of element 31 would be disadvantageous in Czarnek, and therefore Czarnek would lead a person of ordinary skill away from such a relative position between an image illuminating device and an image deviating device.

The reference of Hayes also does not teach nor suggest Applicant's relative positioning of an image deviating device and an illuminating device. Applicant notes that Hayes describes a light source including a housing 12 and bulb 12A. Hayes also describes a prism 14. It is quite clear from Figures 2 and 3 of Hayes, that light source 12 and lightbulb 12A are not positioned at a same longitudinal or axial position. Therefore the positioning of the illuminating device and

the deviating device being at the same axial position is also not taught in Hayes. Furthermore Applicant finds no incentive which would lead a person of ordinary skill in the art to place the illuminating source 12 or the lightbulb 12A of Hayes at a same axial or longitudinal position.

The combination of Czarnek and Hayes therefore fails to describe all the features set forth in the independent claims. Furthermore, Applicant finds no incentive in the prior art which would lead a person to the relative positioning of the present invention. Therefore the combination of the prior art fails to describe all the features, and provide any incentive which would lead a person to the features of the present invention. The independent claims therefore define over the prior art.

Applicant notes that claim 22 specifically sets forth that the illuminating device emits light at a longitudinal position of the image deviation device. As described above, the prior art does not teach nor suggest emitting light and receiving images at a same longitudinal or axial position, and therefore claim 22 clearly defines over the prior art.

Claim 1 sets forth that the light exit is disposed besides the device for image deviation at the axially outer end of the lens head. Applicant notes that element 31 in Czarnek is not positioned at an axially outer end of a lens head. In fact element 31 in Czarnek is clearly spaced from an end face 15 by mirror 27 and image plane 25. Therefore Czarnek does not teach the relative positioning set forth in claim 1. With regards to Hayes, elements 12 and 12A are clearly not at an axially outer end of a lens head, especially a lens head which includes a device for image deviation. Therefore the relative positioning features in claim 1 of the illuminating device and the image deviation device are clearly not taught nor suggested in the combination of the

prior art.

Independent claim 20 sets forth that the light exit of the illuminating device is disposed circumferentially beside said device for image deviation. In Figure 2 of the present invention, the preferred embodiment of the image deviation device is mirror or prism 9. The axial direction is vertical in Figure 2, and the circumferential direction in Figure 2 is horizontal or left-right. The preferred embodiment of the illuminating device are light exits 15 and 16 in Figure 2, and these are clearly circumferentially beside the mirror 9. As described above, the prior art does not teach such a relative positioning of an illuminating device and an image deviation device. Independent claim 20 therefore clearly defines over the combination of the prior art.

Independent claim 20 sets forth that the exit point of the light is disposed in the area of the axially outer end of the lens head. As described above, this is not taught not suggested in the prior art, and therefore claim 19 further defines over the prior art.

Claim 23 sets forth that the image deviation device is receivable of the external image over a longitudinal image distance. In the preferred embodiment, the longitudinal image distance is the longitudinal distance between the bottom of prism 9 and the top of prism 9 in Figure 2. Claim 23 further sets forth that the illuminating device emits the light at a position within the longitudinal image distance. In Figure 2, light exits 15 and 16 are clearly within the longitudinal image distance which is the top and bottom of prism 9. The prior art clearly does not teach nor suggest emitting light at such a longitudinal position, and claim 23 therefore further defines over the prior art.

Claim 24 sets forth that the longitudinal image distance has one longitudinal end at the

farthest longitudinal distance of the head. This further emphasizes the feature that the image deviation device is positioned at the utmost end of the head. Claim 24 also sets forth that the illuminating device emits a light at position adjacent the farthest longitudinal distance. One embodiment of this feature is shown in Figure 2, where the light exits 15 and 16 are adjacent the bottom edge of the prism 9. This feature is not taught nor suggested in the prior art, and claim 24 therefore further defines over the prior art.

Claim 25 sets forth that the head includes a web longitudinally extending along one side of the image deviation device. This web is shown in Figure 2 by either of elements 13 or 14. Claim 25 further sets forth that the web extends to, or less than, the farthest longitudinal distance. In the embodiment of Figure 2, the web extends to the bottom of prism 9. This is beneficial since the web 13 or 14 can then both serve as a support for the prism 9, and as a protective element for the bottom edge of prism 9. In some applications, the bottom edge of the prism 9 might not need protection, or it may be desirable to get the bottom edge of the prism 9 as close to the printed circuit board as possible. In these type of applications, the webs do not extend all the way to the bottom of the prism 9. This feature is further not taught nor suggested in the prior art, and therefore claim 25 further defines over the prior art.

Claim 28 sets forth that each of the webs defines an opening for emitting light from the illuminating device. Applicant finds no teaching nor suggestion of two separate webs on opposite sides of an image deviation device emitting light, and therefore claim 28 further defines over the prior art.

Applicant further notes that the present invention satisfies a long felt need in inspection


apparatus, especially with regard to solder connections between an electrical component and a board. The present invention is also a tremendous commercial success which further indicates that the present invention is not obvious in view of the prior art. With this request for reconsideration, Applicant is submitting an Affidavit attesting to the long felt need and commercial success.

The present invention is an improvement in the prior art, since it allows the capturing and presenting of an image between the bottom of an electrical component, and the top of the circuit board to which it is attached. As the Examiner can appreciate, especially from the present application, this gap is very small, less than one millimeter. The prior art of Czarnek is not designed to capture images from such a location. The structure of Czarnek clearly prevents the capturing of such an image. The reference of Hayes is also clearly not intended to capture an image from a gap under an electrical component. Instead Hayes is concerned with viewing connectors which are spaced from the component. The lighting of Hayes would be completely inappropriate to viewing underneath an electrical component. If the device of Hayes were used, the connections underneath the electrical component would be shadowed and not viewable. The present invention is an improvement over the prior art in that it allows the capture of an image from the gap underneath an electrical component. Applicant respectfully requests protection for this improvement.

If the examiner has any comments or suggestions which would further favorable prosecution of this application, the Examiner is invited to contact Applicant's representative by telephone to discuss possible changes. At this time Applicant respectfully requests

reconsideration of this application, and based on the above amendments and remarks,
respectfully solicits allowance of this application.

Respectfully submitted
for Applicant,

By: 
Theobald Dengler
Registration No. 34,575
McGLEW AND TUTTLE, P.C.

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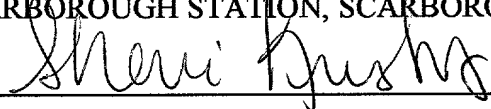
Encls.: Affidavit

DATED: May 25, 2001
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SHOULD ANY OTHER FEE BE REQUIRED, THE PATENT AND TRADEMARK OFFICE
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BY:  DATE: May 25, 2001